

ENTER PROGRAM NAME		14 DATE: FEBRUARY 6, 2001		PRINT (SUPPLIER FORMAT)	
ENTER PROGRAM DESCRIPTION		15 MARKUP		MATERIAL 1.00	25 LABOR RATE STRUCTURE
		16 HOURS 1.00	17 BUILD RATE \$50.00	18 BUILD RATE \$50.00	22
SUPPLIER NAME	PICO	ESTIMATED BY: <input type="text"/> YOUR NAME HERE		35	
BUYER	26	27	28	29	30
	31	32	33	34	35
DP OR TAB #	NEW OR ALTER	TOOL NUMBER	NUMBER OF TOOLS	TOOL DESCRIPTION	TOOL COST
1 10	NEW <input checked="" type="checkbox"/>	10	1 <input checked="" type="checkbox"/>	10	ADD A TOOL
2 10	NEW <input checked="" type="checkbox"/>	20	1 <input checked="" type="checkbox"/>	20	
3 10	NEW <input checked="" type="checkbox"/>	30	1 <input checked="" type="checkbox"/>	30	
4 10	NEW <input checked="" type="checkbox"/>	40	1 <input checked="" type="checkbox"/>	40	
5 10	NEW <input checked="" type="checkbox"/>	50	1 <input checked="" type="checkbox"/>	50	
6 10	NEW <input checked="" type="checkbox"/>	60	1 <input checked="" type="checkbox"/>	60	
7 10	NEW <input checked="" type="checkbox"/>	70	1 <input checked="" type="checkbox"/>	70	
8 10	NEW <input checked="" type="checkbox"/>	80	1 <input checked="" type="checkbox"/>	80	
9 10	NEW <input checked="" type="checkbox"/>	90	1 <input checked="" type="checkbox"/>	90	
10 10	NEW <input checked="" type="checkbox"/>	100	1 <input checked="" type="checkbox"/>	100	
11 10	NEW <input checked="" type="checkbox"/>	110	1 <input checked="" type="checkbox"/>	110	
12 10	NEW <input checked="" type="checkbox"/>	120	1 <input checked="" type="checkbox"/>	120	
13 10	NEW <input checked="" type="checkbox"/>	130	1 <input checked="" type="checkbox"/>	130	
14 10	NEW <input checked="" type="checkbox"/>	140	1 <input checked="" type="checkbox"/>	140	
15 10	NEW <input checked="" type="checkbox"/>	150	1 <input checked="" type="checkbox"/>	150	

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NUMBER OF TOOLS	OPERATION #	10																																																																																										
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1	TOOL NUMBER	10																																																																																										
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Fig. 2a

COMMON ASSEMBLIES:		
GEO STATION	WELDING ROBOT	LIFT ASSIST
PEDESTAL WELDER	DISPENSE ROBOT	ARTICULATING ARM
IDLE STATION	CONVEYOR	TORQUE TUBE
MATERIAL ROBOT	CONTROLS	ASSEMBLY FIXTURE

38a

38

DESIGN	MATERIAL 1.00
BUILD	HOURS 1.00
	RATE \$ 50.00
	RATE \$ 50.00

DOES THIS TOOL HAVE CONTROLS? YES ▼

50

TOTAL	Info Links
\$ 15.377	info
\$ 22.218	
\$ 2.485	
\$ 34.740	
\$ 1.770	
\$ 1.124	
\$ 3.160	
\$ 4.457	
\$ 3.716	
\$ 20.260	
\$ 494	
\$ 917	
\$ 1.770	
\$ 60.280	
\$ 1.350	
\$ 1.134	
\$ -	
\$ 175.252	

• • •

Total Build Labor Hours	Total Build Labor Hours	Total Material Cost
86.9	\$ 5.943	\$ 5.684
10.7	\$ 5.556	\$ 5.186
1.3	\$ 2.250	\$ 210
50.0	\$ 11.000	\$ 3.208
5.3	\$ 1.090	\$ 180
2.0	\$ 600	\$ 24
5.0	\$ 2.400	\$ 160
8.0	\$ 500	\$ 3.430
23.0	\$ 2.700	\$ 168
8.0	\$ 600	\$ 1.810
0.0	\$ 50	\$ 135
0.0	\$ -	\$ -
0.5	\$ 750	\$ 1.020
54.5	\$ 23.412	\$ 136
0.0	\$ -	\$ 250
0.0	\$ -	\$ -
0.0	\$ -	\$ -
255.1	\$ 56.851	\$ 21.601

\$ 175.252

• • •

0.4	\$ 45	\$ 57.
1.2	\$ 170	\$ 32
2.2	\$ 480	\$ 216

\$ 254

\$ 1.277

\$ 5.187

Fig. 2b

03A.013 CLAMP UNIT - BLADE TYPE - AIR, POWER, ENCLOSED, MEDIUM

An air actuated clamping unit of medium size featuring an enclosed design.

Clamp Unit - Air, Power, Enclosed Medium		Total Build Labor Hours	Sub-Total Build Hours	Cut & Weld Hours	Large Machine Hours	Small Machine Hours	Other Misc Service Hours	Unit Assembly	Material Cost	Sub-Total Material Cost
		18.2	16.2	3.25	2.75	4.25	2.75	3.15	\$ 652	\$ 648
Component Detail Qty.										
Purchased Clamp oval cylinder w/sensing 63mm cyl. bore	1	0.50	0.50	0.00	0.00	0.00	0.00	0.50	\$ 588	\$ 588
Hose assembly - air	Qty.									
Fixed orifice - air	2									
Cable assembly - 4 pin	1									
Field tag	3									
Valve short stroke - air (Ref. 01D.010)	1	.333								
Distribution block - air	0									
		333								
Grind spacer	2	0.00	0.00					0.00	\$ 3	\$ 1
L Block	2	4.00	2.00	0.50	0.00	1.00	0.50	0.00	\$ 4	\$ 2
Riser (angle bracket)	1	9.20	9.20	2.25	2.75	2.25	1.75	0.20	\$ 43	\$ 43
Blade	1	2.20	2.20	0.50	0.00	1.00	0.50	0.20	\$ 6	\$ 6
Associated hardware	Lot	0.25	0.25					0.25	\$ 8	\$ 8
Component to fixture assembly	Lot	2.00	2.00					2.00	\$ -	\$ -

60

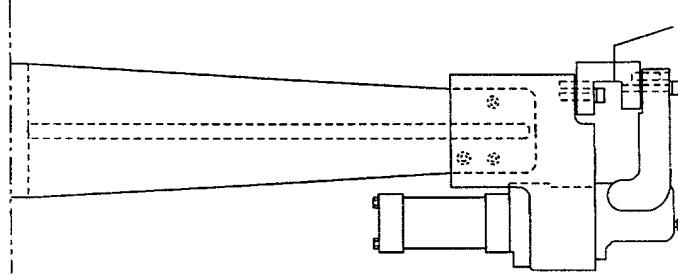


Fig. 3a

Purchased Material Cost	Raw Material Cost	Piping Labor Hours	Sub-Total Piping Labor	Piping Material	Sub-Total Piping Hours	Wiring Labor hours	Wiring Labor Sub-Total	Wiring Material Cost	Wiring Material Sub-Total	Try Out & Integration	Mechanical Design Hours	Control Design Hours
\$ 597	\$ 597	597	597	\$ 597	\$ 597	597	597	\$ 597	\$ 597	597	597	597

\$ 588 \$ - 1.00 16.2

2.00	1.00	\$	40	\$	20						
0.50	0.25	\$	4	\$	2						
						1.00	1.00	\$	18	\$	18
0.90	0.30	\$	6	\$	2						
4.85	4.85	\$	199	\$	199					\$	18
0.00	1.25	\$	-	\$	31						

Clamp Design Estimate

Clamp Dependency Tree

Fig. 3b

01A.042 Valve with stackable base
A device used to actuate a clamp or other air powered device.

Labor **0.25** Material **\$ 115.00**

76 78

Comment: The labor for this item is to select the valve and mount it to the valve stand.

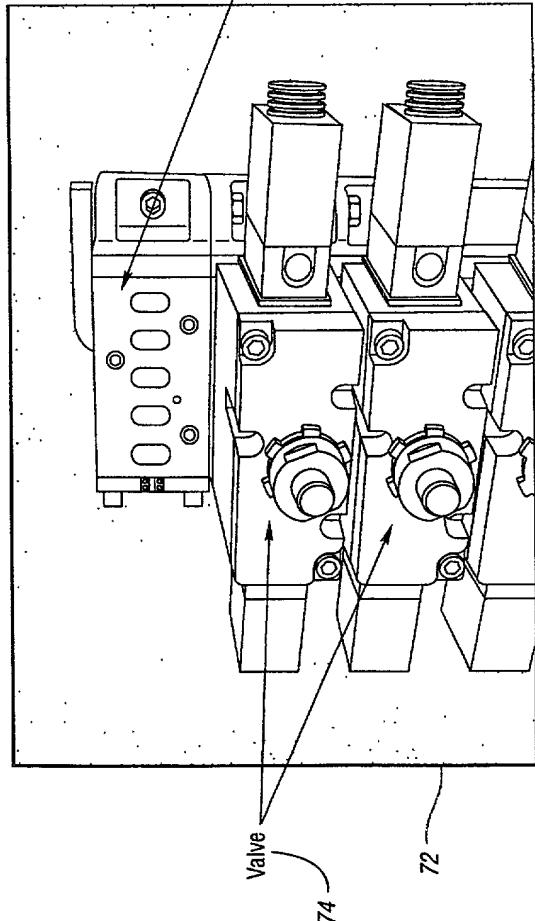


Fig. 4
70

01D.010 VALVE SHORT STROKE AIR

A double solenoid 4-way valve with base used to control cylinders of less than 6" stroke.

Individual Component Database

Component	Piping Labor Each	Wiring Material Each	Total Piping Labor	Total Piping Material	Total Wiring Labor	Total Wiring Material
Valve Short Stroke	<input type="text"/> 0.25	<input type="text"/> \$115.00	<input type="text"/> 0.25	<input type="text"/> \$115.00		
Component Detail Qty.						
Valve with stackable base	<input type="text"/> 1	<input type="text"/> 1	<input type="text"/> 0.00	<input type="text"/> \$152.00	<input type="text"/> 0.00	<input type="text"/> \$ -
Dependent						
Valve feed - air	<input type="text"/> 0.00	<input type="text"/> 1.00	<input type="text"/> 1.00	<input type="text"/> \$ 18.00	<input type="text"/> 1.00	<input type="text"/> \$ 18.00
(Ref. 01D.007)	<input type="text"/> .250					
86						
Cable assembly	<input type="text"/> 1	<input type="text"/> 1	<input type="text"/> 0.30	<input type="text"/> \$ 2.00	<input type="text"/> 0.60	<input type="text"/> \$ 4.00
Field tag	<input type="text"/> 1	<input type="text"/> 1	<input type="text"/> 0.30	<input type="text"/> \$ 2.00	<input type="text"/> 0.60	<input type="text"/> \$ 4.00
Tube assembly	<input type="text"/> 2	<input type="text"/> 2	<input type="text"/> 2.00	<input type="text"/> \$ 40.00	<input type="text"/> 4.00	<input type="text"/> \$ 80.00
- air 10'						
Associated hardware	<input type="text"/> Lot	<input type="text"/> 0.25	<input type="text"/> \$ 5.00	<input type="text"/> 0.00	<input type="text"/> \$ -	<input type="text"/> \$ 1.00
					<input type="text"/> 4.85	<input type="text"/> \$ 19.00
					<input type="text"/> 1.00	<input type="text"/> \$ 18.00

84

Sig. 5

80

03A.013 CLAMP UNIT - Blade Type-Air, Power, Enclosed, Medium

An air actuated clamping unit of medium size
featuring an enclosed design.

Component

Clamp Unit-Air, Power, Enclosed, Medium

Component Detail	Qty.	Dependent
Purchased clamp oval cylinder w/sensing 63mm cyl. bore	1	Hose Assembly-Air
Grind Spacer	2	Fixed orifice-Air
L. Block	2	Cable Assembly-4 pin
Angle Bracket	1	Field Tag
Blade	1	Valve short stroke-air (Ref. 01D.010)
Associated Hardware	Lot	Distribution Block-air
Component To Fixture Assembly	Lot	

A

Drg. Cn

01D.010 Valve Short Stroke-Air

A double solenoid 4-way valve with base,
used to control cylinders of less than
6" stroke

Dependent

Valve short stroke-air

Valve with stackable base 250

Dependent

Valve Feed-Air
(Ref. 01D.007)

01D.010 Valve Short Stroke-Air

Air lines to double feed a stack of air valves for controlling actuators	
Dependent	Valve Feed-Air
Field Tag	Cable assembly-4 pin
Field Tag	Cable assembly-4 pin
Tube to air service - 10 ft	1
Valve base end plate	1
Tube assembly - air 5ft	2
Associated hardware	1 lot

Drg. 66

Reference Part 03a.013
 Reference Drawing Clamp Unit - Blade Type - Air Power, Enclosed, Medium

Description	Sheet		Hours
Isometric View	1	OF 15	1.5
Exploded View	2	OF 15	1.25
Plan View	3	OF 15	1.25
Side View	4	OF 15	1.25
View X	5	OF 15	0.75
View Y	6	OF 15	0.75
View Z	7	OF 15	0.75
View W	8	OF 15	0.75
			8.25
Riser			
Solid Model Riser	9	OF 15	2.25
Detail Riser			0.5
Formal plot			0.5
			3.25
Altered Clamp			
Select and verify clamp & cylinder engineering	10	OF 15	0.25
Select and place cylinder			0.25
Select and place clamp unit			0.2
Solid model end of clamp			2
Detail Clamp Arm & Drawings			0.5
Formal plot			0.5
			3.7
B.O.M.	3	OF 3	3.7
.75 hr per sheet			
Investigation & Line Up			0.25

Total 16.20

Notes

92

Fig. 7

90

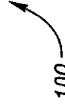
COMPOSITE RATE:

COMPOSITE RATE:	Rate/Hour	Annual Cost/ Direct Labor Employee	(Assumed) Billable Crew Size	Total Annual Cost	Comments
Direct Labor	23.47	56,334	200	11,266,800	Includes machine builders, engineers, designers, etc.
Overtime (10%)	2.35	5,663	200	1,126,680	500 hours/year/direct labor employee
Fringes (35%)	8.22	19,717	200	3,943,380	FICA, W.C., U.I., Medical, Group Life, Paid Holidays, etc.
Indirect labor (includes fringes)	3.52	8,450	200	1,690,020	Includes foreman, material handlers, etc.
Equipment Depreciation	0.76	1,813	200	362,500	\$2,500,000 F12; \$15,000,000 @ 9% Cost of Capital
Facilities Depreciation	2.45	5,875	200	1,175,000	Utilities, Indirect Tooling, Indirect Materials, etc.
Other manufacturing Overhead	2.37	5,688	200	1,137,600	Includes C3P hardware/software
Prod. Dev. Hardware/Software	0.53	1,266	200	253,210	Includes executive fringes, insurance, taxes, etc.
SG&A (9%)	3.72	9,295	200	1,858,923	
Profit (5%)	2.25	5,628	200	1,125,681	Standard Markup
Total:	\$ 49.63	119,699		23,939,794	

Normal Operating Work Schedule:
- 50 Hours/Week/DL Employee
- 78 Weeks/Year/DL Employee

Sig. S

100



Qty	Description	Mechanical Design	Controls Design	Total Build	Supplier Total Cost
1	Station #10 - Geometry Station	\$23,985	\$14,250	\$147,931	\$186,166
1	Station #20 - Material Handling Robot	\$9,100	\$3,000	\$23,367	\$35,467
1	Station #20 - Robot End Effector	\$14,495	\$2,500	\$15,136	\$32,131
1	Station #30 - Pedestal Weld Gun	\$7,605	\$3,500	\$46,974	\$58,079
1	Station #30 - Pivoting Tip Dresser Unit	\$780	\$1,000	\$19,051	\$20,831
	Subtotal:	\$31,980	\$10,000	\$104,528	\$146,508
1	Station #40 - Geometry Weld Station	\$24,310	\$13,250	\$138,156	\$175,716
1	Station #50 - Material Handling Robot	\$9,100	\$3,000	\$23,367	\$35,467
1	Clamp)	\$14,495	\$2,500	\$15,136	\$32,131
	Subtotal:	\$23,595	\$5,500	\$38,503	\$67,598
1	Station	\$12,935	\$6,000	\$43,449	\$62,384
1	Station #70 - Material Handling	\$13,000	\$4,000	\$60,245	\$77,245
1	Clamp)	\$14,495	\$2,500	\$15,136	\$32,131
	Subtotal:	\$27,495	\$6,500	\$75,381	\$109,376
1	Station #80 - Pedestal Sealer Unit	\$3,900	\$1,000	\$15,569	\$20,469
1	Station #90 - Belt Conveyor	\$3,250	\$1,750	\$60,271	\$65,271
Lot	System Safety Fencing	\$207	\$750	\$24,062	\$25,019
Lot	Cable Tray and Header Pipe	\$0	\$1,500	\$24,773	\$26,273
1	T-80 Panel	\$0	\$1,500	\$20,796	\$22,296
1	Robot Distribution Panel	\$0	\$0	\$7,118	\$7,118
1	Power Distribution Panel	\$0	\$10,000	\$25,791	\$35,791
	Subtotal:	\$207	\$13,750	\$102,540	\$116,497
	Total Tooling Line Complete:	\$151,657	\$72,000	\$726,328	\$949,985
	<u>Program Requirements</u>				
Lot	Advanced Engineering	\$31,023	\$15,488	\$0	\$46,511
Lot	Project Management	\$0	\$0	\$145,800	\$145,800
Lot	Part Monitor / Retrieval	\$0	\$0	\$27,000	\$27,000
Lot	Simultaneous Engineering	\$72,000	\$0	\$0	\$72,000
Lot	1A / System Layout - Key Sheet	\$13,500	\$0	\$0	\$13,500
Lot	Weld Studies	\$18,000	\$0	\$0	\$18,000
Lot	Computer Based B.S.C.C.	\$4,500	\$0	\$0	\$4,500
Lot	Process Simulation (Commodity)	\$30,225	\$0	\$0	\$30,225
Lot	Operation and Maintenance Manuals	\$0	\$0	\$58,041	\$58,041
Lot	ECPL Requirements - Energy Control	\$0	\$0	\$1,502	\$1,502
Lot	System Tryout (20 Hour Run)	\$0	\$0	\$4,320	\$4,320
Lot	Teardown and Preparation for Shipping	\$0	\$0	\$2,520	\$2,520
	Total Program Requirements:	\$169,248	\$15,488	\$239,183	\$423,919
	Total Tooling Line Complete:	\$151,657	\$72,000	\$726,328	\$949,985
	Pricing Index Total:	\$320,905	\$87,488	\$965,511	\$1,373,904

Fig. 9a

	QTY	DESIGN TOTAL	BUILD TOTAL	TOOL SUBTOTAL	TOOL TOTAL COST
GENERIC CELL QUOTE (L2)	1	\$231,358	\$707,522	\$938,880	\$938,880
GENERIC CELL QUOTE (L2)	1	\$223,062	\$601,342	\$824,404	\$824,404
GENERIC CELL QUOTE (L2)	1	\$223,062	\$601,342	\$824,404	\$824,404
STATION #10- GEOMETRY STATION	1	\$39,010	\$124,774	\$163,784	\$163,784
ROBOT	1	\$23,009	\$38,569	\$61,578	\$61,578
STATION #30- PEDESTAL WELDER	1	\$24,789	\$39,667	\$64,456	\$64,456
STATION #40- GEOMETRY STATION	1	\$24,178	\$114,586	\$138,764	\$138,764
ROBOT	1	\$12,290	\$30,082	\$42,372	\$42,372
STATION #60- HOLDING FIXTURE/ ROBOT	1	\$7,967	\$29,923	\$37,890	\$37,890
STATION #70- M/H & WELDING ROBOT	1	\$22,768	\$78,321	\$101,089	\$101,089
STATION #80- DISPENSE STATION	1	\$2,157	\$7,119	\$9,276	\$9,276
STATION #90- CONVEYOR	1	\$6,770	\$30,682	\$37,452	\$37,452
SYSTEM	1	\$60,123	\$107,616	\$167,739	\$167,739
LINE CONTROLS	1	\$12,300	\$63,281	\$75,581	\$75,581
SAFETY FENCE COMPLETE	1	\$1,742	\$24,430	\$26,172	\$26,172
SAFETY FENCE PER FT.	180	\$1,245	\$23,154	\$24,399	\$24,399
SAFETY GATE, 3 FT.	3	\$498	\$1,276	\$1,774	\$1,774
SYSTEM DESIGN REQUIREMENTS	1	\$46,080	\$0	\$46,080	\$46,080
ECTA AND TOOL SHEETS	1	\$5,033	\$0	\$5,033	\$5,033
TRAINING SUPPORT COST	1	\$10,056	\$0	\$10,056	\$10,056
CONTROLS LINE-UP	1	\$2,173	\$0	\$2,173	\$2,173
ERGONOMICS STUDY	1	\$3,872	\$0	\$3,872	\$3,872
FMEA	1	\$4,425	\$0	\$4,425	\$4,425
PDGS	1	\$4,346	\$0	\$4,346	\$4,346
PROCESS SIMULATION	1	\$2,173	\$0	\$2,173	\$2,173
PROCESS VERIFICATION	1	\$1,086	\$0	\$1,086	\$1,086
STUD CLEARANCE STUDY	1	\$0	\$0	\$0	\$0
SEALANT STUDY	1	\$1,659	\$0	\$1,659	\$1,659
WELD STUDY	1	\$3,651	\$0	\$3,651	\$3,651
SYSTEM LAYOUT	1	\$7,606	\$0	\$7,606	\$7,606
TEARDOWN AND TRYOUT OF SYSTEM	1	\$0	\$19,905	\$19,905	\$19,905
TRYOUT	1	\$0	\$13,204	\$13,204	\$13,204
TEARDOWN	1	\$0	\$6,701	\$6,701	\$6,701
FULL SERVICE SUPPLIER REQUIREMENTS	1	\$8,297	\$106,181	\$114,478	\$114,478
ADVANCED ENGINEERING	1	\$8,297	\$0	\$8,297	\$8,297
ENGINEER - (1 MAN, 3 WEEKS)	1	\$8,297	\$0	\$8,297	\$8,297
PROJECT MANAGEMENT	1	\$0	\$84,732	\$84,732	\$84,732
PROJECT MANAGER(1 MAN, 24 WEEKS)	1	\$0	\$84,732	\$84,732	\$84,732
VENDOR TOOL TRY-OUT & RUNOFF	1	\$0	\$21,449	\$21,449	\$21,449
TECHNICIAN MECHANICAL(1 MAN, 2 DAYS)	1	\$0	\$5,268	\$5,268	\$5,268
TECHNICIAN PNEUMATIC(1 MAN, 2 DAYS)	1	\$0	\$5,268	\$5,268	\$5,268
TECHNICIAN ELECTRICAL(1 MAN, 2 DAYS)	1	\$0	\$5,268	\$5,268	\$5,268
TECHNICIAN ROBOTIC(1 MAN, 2 DAYS)	1	\$0	\$5,645	\$5,645	\$5,645

Fig. 95

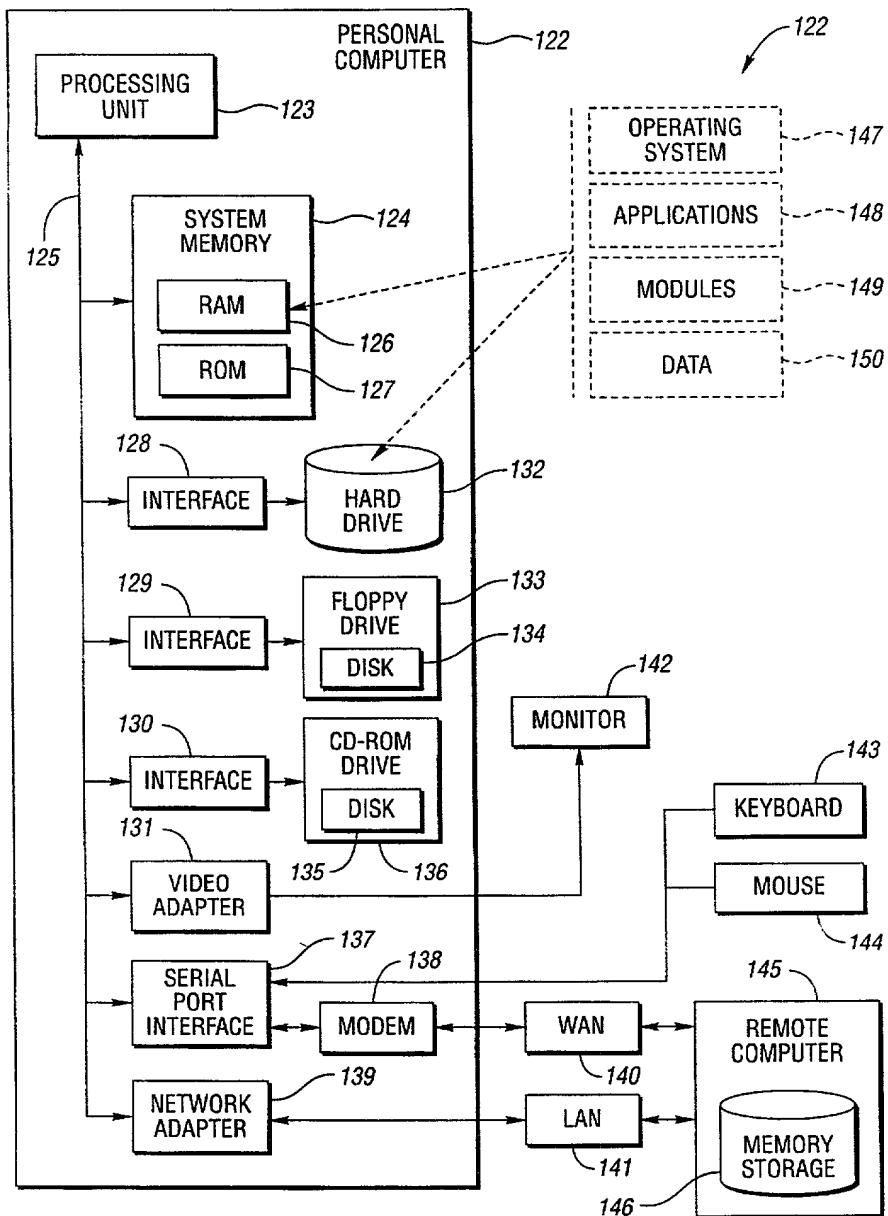


Fig. 10

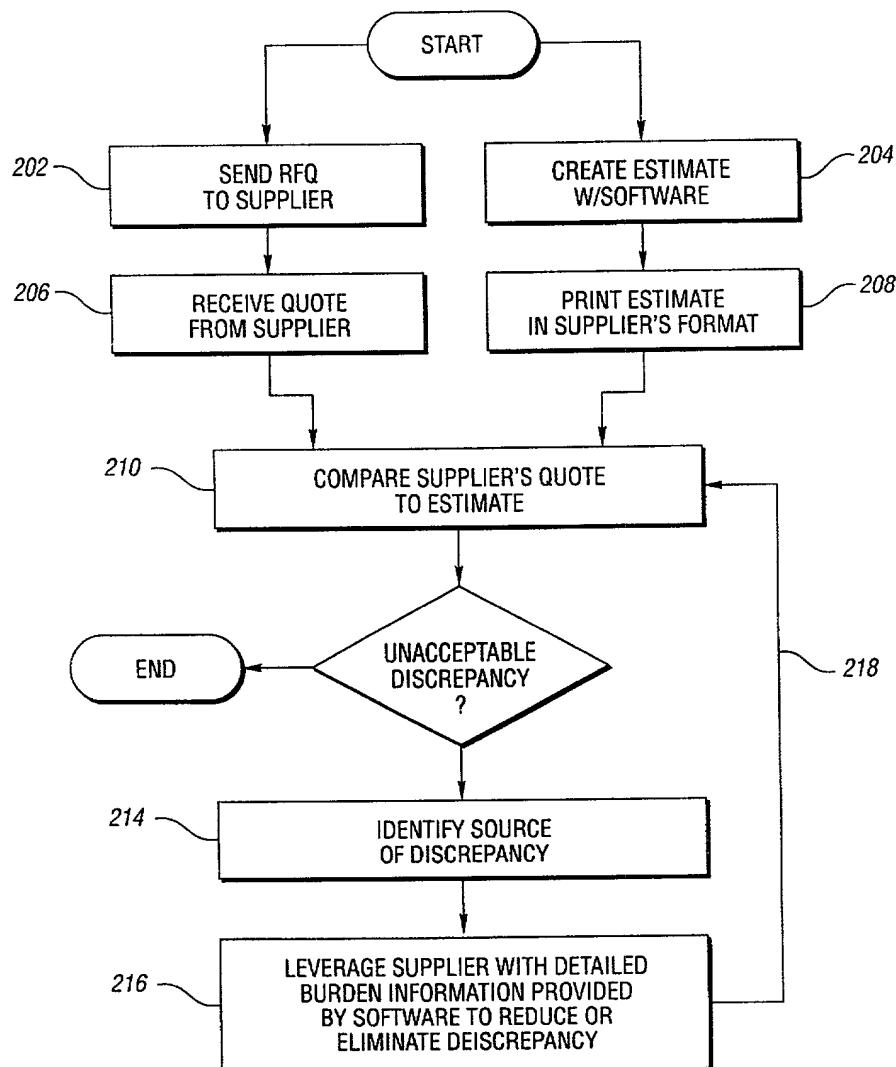


Fig. 11